LIA TODAY

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LIA
THE LASER INSTITUTE

LIA TODAY

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U.S. DEPARTMENT OF LABOR ISSUES UPDATED GUIDANCE ON PROTECTING UNVACCINATED AND OTHER AT-RISK WORKERS FROM THE CORONAVIRUS

The U.S. Department of Labor's Occupational Safety and Health Administration issued updated guidance to help employers protect workers from the coronavirus.

Catch up on all of the past issues!

https://www.lia.org/subscriptions/lia-today

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LASER AM FOR SPACE EXPLORATION

By, Eliana Fu of TRUMPF

Laser Additive Manufacturing is the ideal technology for applications in aerospace and in particular, space exploration. The technical advantages will be discussed with some highlighted examples comparing traditional manufacturing to current AM processes along with the benefits of leadtime and greater access to space. We will also take a quick glimpse into future ideas of printing in space and other worlds.

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BLS: INITIAL CERTIFICATION STEPS

If you are interested in becoming certified by the Board of Laser Safety, read this excerpt from the Policies and Procedures Manual explaining the steps in the certification process for new applicants.

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FEATURES

BLS NEWSLETTER

ADVERTISERS

LIA Laser Safety Trainings

LASER SAFETY OFFICER TRAINING	
Orlando, FL	Jun. 2 - 4, 2021
Orlando, FL	Aug. 18 - 20, 2021
LASER SAFETY OFFICER WITH HAZARD ANALYSIS	
Orlando, FL	Jun. 7 - 11, 2021
Orlando, FL	Aug. 23 - 27, 2021
MEDICAL LASER SAFETY OFFICER TRAINING	
Orlando, FL	Jun. 5 - 6, 2021
Orlando, FL	Aug 21 - 22, 2021
INDUSTRIAL LASER SAFETY OFFICER TRAINING	
Novi, MI	May 12 - 13, 2021
Novi, MI	Aug. 11 - 12, 2021
Novi, MI	Nov. 10 - 11, 2021

Visit www.lia.org for all course and event listings

Course Highlight

LASER SAFETY OFFICER TRAINING
ONLINE - ANYTIME, ANYWHERE

As a Laser Safety Officer, you have one of the most important responsibilities in your organization - to uphold the highest standard of laser safety. Your commitment to safety prevents injuries. Your enforcement of safety policies isn't always easy, but you know the consequences otherwise. It is this persistent motivation that protects your team and makes a difference. Developed and taught by LIA experts - the industry leader in laser safety education - the LSO course was designed for all levels of experience involved in industrial, military, educational, or research applications of lasers.

As you know, the laser field changes at a rapid pace. That's why it's so important to stay on the leading-edge of safety training and advancement, especially in the role of Laser Safety Officer. Considering all of your responsibilities, we've made it a little easier to stay on the forefront of laser safety. LIA's most popular training program for the Laser Safety Officer is now offered over the Internet in a convenient, easy-to-use online course format.

Gilbert Haas
LIA President 2021

PRESIDENT'S MESSAGE

As we approach the end of the summer here in the United States, the pandemic restrictions have eased only to be currently reassessed given the new Delta variant. The LIA is currently adapting by working remotely and in the office part time.

During the summer, the LIA staff has been busy getting ready for this year's ICALEO. Many committees have been formed for awards, presentations, paper submissions, etc. The team has also been traveling to and participating at regional trade shows to promote the organization while evaluating attendance, participation, etc. Laser safety classes have been running remotely and in person as allowed. In addition, the new by-laws committee is currently evaluating the final update.

The organization is currently completing the final changes from the reorganization which is making the organization stronger and more capable to adapt and adjust as needed.

Be well and stay safe.

Nat Quick
Executive Director

EXECUTIVE DIRECTOR'S MESSAGE

With the end of summer we would like to wish all of the students and staff going back to school a safe and productive semester. As President Gil Haas says in his message, LIA continues to keep tabs on the COVID-19 Delta variant, and any other variants, and we are adjusting our plans for work and events accordingly. LIA Employees will continue to work both remotely and in the office as necessary.

Featured in this issue is an article submission from Eliana Fu of TRUMPF called *Laser AM for Space Exploration*. It discusses the uses of Laser Additive Manufacturing in space exploration and what current and future advantages it gives us in comparison to traditional manufacturing methods. It is an interesting read and I recommend it.

Also in this issue you can find the next student from UCF's CREOL highlighted in the Student Spotlight segment. Hear from Jessica Pena as she discusses her studies in Optics and Photonics and her plans for the future.

We look forward to ICALEO 2021, October 18 thru 20, and your participation. Although the conference is virtual, it has several new innovations and topics designed to improve the virtual experience. The Advance Program will be coming soon to the icaleo.org website with more information on how to optimize your conference experience.

Stay safe and keep others safe.

International Congress on Applications of Lasers & Electro-Optics

Registration is now open! Join us October 18-20, 2021 to get the latest in laser industry research and connect with old and new friends from all around the world. This year's virtual event will offer more of the in-person feel of our typical ICALEO with interactive sessions, networking tables, and more!

The Advance Program will be available on the website soon with more information on things like the program and virtual platform features.

To stay updated on this event, please visit icaleo.org.

International Laser Safety Conference

The new dates and location for our ILSC conference have been announced for 2022 and we are excited to be hosting you in Houston, Texas on March 21-24!

Early bird sponsorship opportunities are available. The call for papers is also open with the abstract deadline being October 12, 2021.

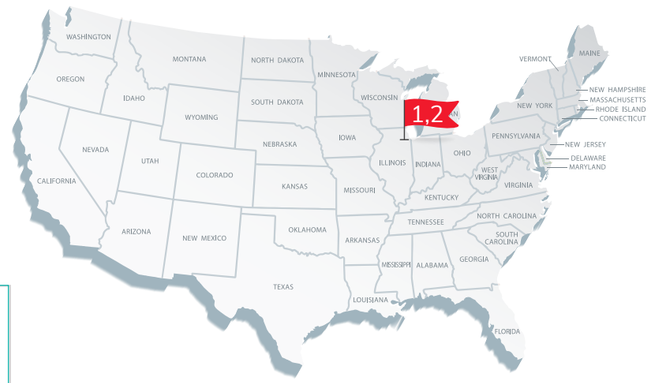
To stay updated on this event, please visit ilsc.ngo.

Find LIA at these Laser Conferences in 2021!

Upcoming Laser Industry Conferences in North America - 2021

Visit LIA at Booth A3439!

1. RAPID + TCT, Sept. 13-15
2. FABTECH, Sept. 13-16
3. OSA Frontiers in Optics + Laser Science, Oct. 31 - Nov. 4
4. ICALEO, Oct. 18-20



ICALEO®
40th INTERNATIONAL CONGRESS ON APPLICATIONS OF LASERS & ELECTRO-OPTICS

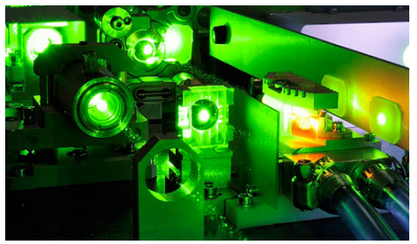
Join us for our 2021 ICALEO® conference!

The World's Premier Platform for Breakthrough Laser Solutions, the International Congress on Applications of Lasers & Electro-Optics, brings together the leaders and experts in the field of laser material interaction, providing the world's premier platform for sharing new ideas and discovering solutions.

*Conference LIA is Attending

TRENDING IN THE NEWS:
LIA'S TOP 4 ARTICLE PICKS

1



3D LASER BEAMS CHANGE SHAPE TO MATCH APPLICATION

Researchers at the National Robotarium at Heriot-Watt University secured funding to develop 3D laser beams that can be shaped to match industry needs and tailored to the task at hand.

Read more

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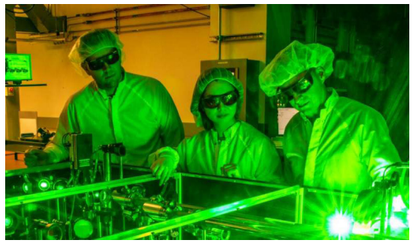

OPTICAL INNOVATION COULD CALM THE JITTERS OF HIGH-POWER LASERS

Berkeley Lab has developed and tested an innovative optical system to precisely measure and control the position and pointing angle of high-power laser beams with unprecedented accuracy—without interrupting or disturbing the beams.

Read more

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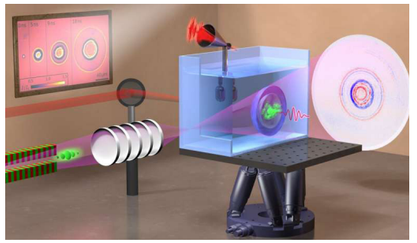

X-RAY FLASH IMAGING OF LASER-INDUCED BUBBLES AND SHOCKWAVES IN WATER

Researchers have created tiny bubbles in high-pressure water via intense focused lasers.

Read more

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HIGH-INTENSITY LASER THERAPY DEEMED EFFECTIVE FOR CHRONIC REFRACTORY WOUNDS, RESEARCH SAYS

High-intensity laser therapy (HILT) combined with wound dressing was superior to conventional wound care, according to a recent study.

Read more

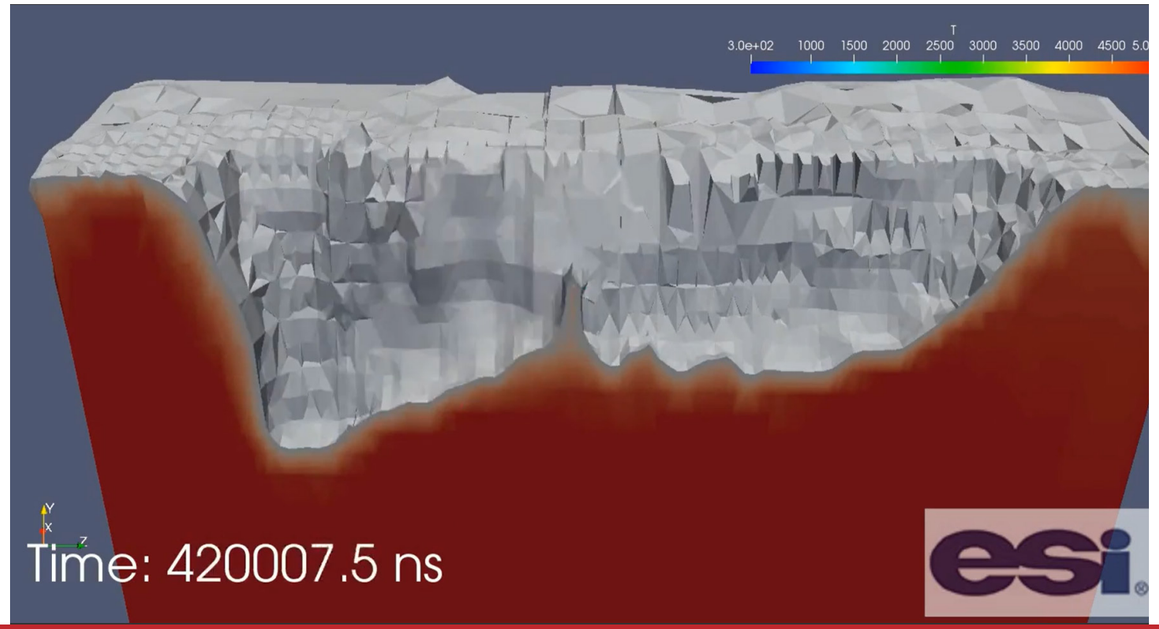

Image: Snapshot of a multiphase simulation animation of the nanosecond laser line-scribe process in silicon.

ULTRAFAST LASER ABLATION OF SILICON WITH ~GHZ BURSTS

By: Hisashi Matsumotoa, Zhibin Lin, Joel N. Schrauben, and Jan Kleinert

Abstract: The authors report on processing silicon with bursts of hundreds of subpicosecond pulses with an intraburst pulse repetition frequency of 0.86 GHz at 515 nm. They find that the burst-to-burst overlap is a key parameter in optimizing the ablation efficiency for the line scribing and milling processes, contrary to traditional nonburst ultrafast processes. A nanosecond laser reference experiment and the corresponding multiphase simulations demonstrate that this behavior is directly related to the hydrodynamic effects of the molten material generated during the laser processing. Exploring the hole and scribe morphology with scanning transmission electron microscopy and selective area electron diffraction yields a surprise: holes show no sign of a polycrystalline or amorphous heat affected zone, while scribed lines clearly do. The multiphase modeling provides a likely explanation—it is not "ablation cooling".

Journal of Laser Applications 33, 032010 (2021); https://doi.org/10.2351/7.0000372

Free to LIA Members!
Visit JLA Online: https://lia.scitation.org/journal/jla

JLA Journal of Laser Applications

CREOL, The College of Optics and Photonics

Photo Credit: UCF Office of Research

STUDENT SPOTLIGHT

Name: Jessica Pena
Hometown/State: Naperville, Illinois
Year in School: 4th year in the PhD program
Area of Study/Major: Optics and Photonics

When were you first introduced to photonics/electro-optics?

My first introduction to the field of optics and lasers, and especially to the research and applied side of this field, was during my undergraduate career. I did a summer research program with LIGO at Caltech after my Sophomore year and learned the basics of interferometry and how far-reaching the applications of lasers are. After that summer I knew that lasers were something I wanted to explore further.

What or who inspired you to choose your line of study?

My particular line of research uses chirped pulse amplification (CPA) to produce intense laser pulses for various applications. I was inspired to pursue this field of study by another summer research program I attended during undergrad, this one at Kirtland Air Force Base. I learned how to work in an optics lab and learned how a CPA laser operates. This program inspired me to pursue a graduate degree in a similar field, which is how I found CREOL and the Laser Plasma Laboratory where I am currently doing my graduate research.

Describe your favorite course you have taken so far.

My favorite course has been Fundamentals of Ultrafast Optics. It brought together aspects from other introductory optics courses and tied in with my research. It was interesting to learn the math and physics describing how the laser I use every day works. This class also introduced me to other ultrafast concepts and helped broaden my horizons on the field of optics and photonics. That is something I feel most of my coursework has done extremely well, but I enjoyed this class in particular because of its application to my research and the awesome professor!

Are you researching anything at the moment? Can you tell us about it?

Yes, I am currently several years into the research component of my doctoral program. My research uses a Ti:Sapphire based CPA laser to generate intense (TW-level) pulses. The nonlinear propagation of these pulses through the air generates a filament, or a plasma channel and intense light channel. This channel is roughly the width of a human hair and can propagate through adverse environments without experiencing the same loss and diffractive effects that a non-filamenting beam would. Applications of filamentation range from defense to communications to machining. I am studying the propagation of these filaments through various atmospheric conditions like low pressures (high altitudes) and through aerosol-dense environments (clouds).

What would you like to do in the future with your studies?

I enjoy working in the lab and being involved in the hands-on aspect of research and laser engineering. I would love to be able to continue working in an environment like this after graduation, and anticipate myself working in either industry or a national/defense lab.

U.S. Department of Labor issues updated guidance on protecting unvaccinated and other at-risk workers from the coronavirus

WASHINGTON, DC – The U.S. Department of Labor's Occupational Safety and Health Administration today issued updated guidance to help employers protect workers from the coronavirus. The updated guidance reflects developments in science and data, including the Centers for Disease Control and Prevention's updated COVID-19 guidance issued July 27.

The updated guidance expands information on appropriate measures for protecting workers in higher-risk workplaces with mixed-vaccination status workers, particularly for industries such as manufacturing; meat, seafood and poultry processing; high volume retail and grocery; and agricultural processing, where there is often prolonged close contact with other workers and/or non-workers.

OSHA's latest guidance:

- Recommends that fully vaccinated workers in areas of substantial or high community transmission wear masks in order to protect unvaccinated workers;
- Recommends that fully vaccinated workers who have close contacts with people with coronavirus wear masks for up to 14 days unless they have a negative coronavirus test at least 3-5 days after such contact;
- Clarifies recommendations to protect unvaccinated workers and other at-risk workers in manufacturing, meat and poultry processing, seafood processing and agricultural processing; and
- Links to the latest guidance on K-12 schools and CDC statements on public transit.

OSHA continues to emphasize that vaccination is the optimal step to protect workers and encourages employers to engage with workers and their representatives to implement multi-layered approaches to protect unvaccinated or otherwise at-risk workers from the coronavirus.

As part of the agency's ongoing commitment to review the COVID-19 Healthcare Emergency Temporary Standard every 30-days, OSHA also said that the safeguards set forth by the standard remain more important than ever. After reviewing the latest guidance, science and data, and consulting with the CDC and partners, OSHA has determined the requirements of the healthcare ETS remain necessary to address the grave danger of the coronavirus in healthcare. OSHA will continue to monitor and assess the need for changes in the healthcare ETS each month.

Our priority is the safety and health of workers, and we will continue to enforce the law to ensure workers are protected from the virus while they are on the job, including through OSHA's National Emphasis Program on COVID.

Original Release: August 13, 2021

Source: https://www.osha.gov/news/newsreleases/trade/08132021

Laser AM for Space Exploration

Laser Additive Manufacturing is the ideal technology for applications in aerospace and, in particular, space exploration. The technical advantages will be discussed with some highlighted examples comparing traditional manufacturing to current AM processes, along with the benefits of leadtime and greater access to space. We will also take a quick glimpse into future ideas of printing in space and other worlds.

We are in the midst of a new and exciting global space race. In the 1950s and 60s we saw the first space race between the USA and the USSR with goals to be the first human in space and then, the first human on the moon. As a species we have not set foot on the moon since the year of this author's birth, but rather we have shifted our emphasis to learn how the human body can exist in micro-gravity for extended periods. Now in the current era, the new space race from private and small companies, is to achieve space flight using smaller, more nimble launch vehicles. Laser AM (Additive Manufacturing), or 3D Printing, is an ideal technology for these companies as a manufacturing process to quickly design, build, and iterate to make structures and vehicles for space flight. Moreover, many of these new and smaller companies have limited resources and space for capex and tooling costs, so Laser AM is an ideal technology with a smaller overall footprint for manufacturing.

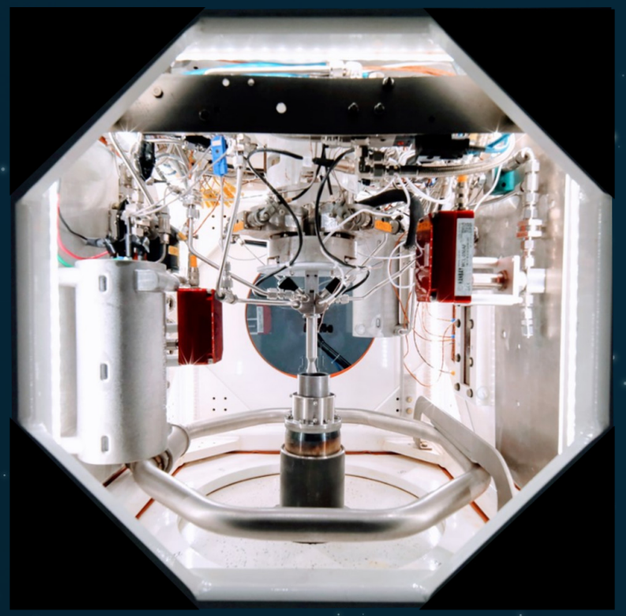

Figure 1. Agile Space is one of many new space vehicle propulsion system providers using Laser AM. [Ref: Photo courtesy of Agile Space Inc.]

In traditional manufacturing, rocket ships for space exploration have used well known and established manufacturing processes, such as: for barrels, these would be produced using friction stir welding of aluminum sheet metal after bump-forming and shearing; for iso-grids, machining pockets out of thick plate; and for domes, welding and hot-spin-forming. All of these processes have associated lead time for raw material, processing, cleaning, and inspection. Any reduction in leadtime for any or all of these processes not only results in decreased overall lead-time, but allows extra time for any proof testing, hot fire testing, and vehicle integration.

Figure 2. Hot fire testing of Laser AM rocket engine at Relativity Space [https://cdn.arstechnica.net/wp-content/uploads/2020/03/Dec.-19th-Hotfire-1-800x440.png]

Laser AM to produce components for space exploration includes propulsion devices and structural components. For propulsion, specifically rocket engines, the advantage of using Laser AM is obvious: the reduction in overall number of parts in an engine (reduces risk of manufacturing flaws when only dealing with tens of parts compared to hundreds of parts), design simplification, the ability to print cooling channels with unique overhanging angles, and improved thrust. With better materials that are designed specifically for AM, better heat capacity and strength can be obtained, resulting in improved engine efficiency. With improved engine efficiency this can translate into achieving higher orbit or being able to transport larger payloads. For structural components including the tanks and barrel sections of rocket vehicles, the ability to use Laser AM eliminates the cost of requiring tooling for sheet metal forming and fixturing for friction stir welding, which can run into the $2M range.

3D printed parts are now on Mars – the Mars rover Perseverance has 11 components produced by Laser AM. Astronauts have already successfully printed polymer and ceramic parts on the ISS (International Space Station) where the feedstock is less volatile than metal powder, where fines can be pyrophoric. However, the goal of actually 3D printing on another planet is within reach. On Earth we have been able to print low-cost housing with ceramics, so this will very likely translate to the next logical step, printing regoliths on other planetary bodies, such as the moon or Mars. It will be obviously easier to print extra-terrestrially using native feedstock than dealing with storage and handling of material feedstock during launch, flight, and landing.

Figure 3. Future missions to planetary bodies must include 3D printing
[Ref: https://www.nasa.gov/sites/default/files/thumbnails/image/for_press_release.jpg]

The overall reduction in leadtime from traditional manufacturing processes actually results in a greater number of flight windows for the final vehicle. The increased availability of flight windows, higher orbits, and larger payloads opens up more opportunities for customers to go into space, whether it be space tourism or satellite customers. It is an exciting time to be involved in space exploration and Laser AM is the perfect tool to achieve these lofty goals. Keep watching the skies!

TRUMPF

About the Author

Eliana Fu was educated at Imperial College, University of London with a Masters and PhD in Materials Science. Eliana also performed post-doctoral research at Loughborough University (UK) and Clemson University (USA). After working extensively in the Traditional Manufacturing world, with TWI then TIMET and SpaceX, she turned her attention to Additive Manufacturing at SpaceX and then with Relativity Space as Senior Engineer: Additive Technologies. Eliana then joined TRUMPF as Industry Manager, Aerospace & Medical. She also serves as Women in 3D Printing Ambassador for Las Vegas and is involved with many other volunteer STEM activities for middle-school kids. Eliana has written a book based on her experiences as a female engineer at SpaceX.

WANT TO SHARE YOUR IDEAS WITH THE LASER COMMUNITY THROUGH *LIA TODAY*?

LIA TODAY

Check out the guest article guidelines below and get in touch with an editor today!

BEFORE YOU SUBMIT:

Content: We are always looking for great newsworthy content that covers challenges and innovations in the field of photonic materials processing, laser safety, and laser market trends. This is not a paid opportunity, but does carry the benefit of publishing your work on a platform that is read by thousands of your peers. All article topics should be confirmed with an LIA TODAY editor before writing your article. Please email your article ideas to liatoday@lia.org and an editor will be in touch with you.

Potential Categories: Safety, medical applications, research and development, laser applications fundamentals, history, business, and other categories.

Potential Industries: Energy storage, aerospace, DoD non-aerospace, automotive, medical devices and biotechnology, microelectronics and IC fabrication, Internet of Things, research and development, and other industries.

SUBMISSION GUIDELINES:

Style: The tone should be editorial and informative; it should not sound like a sales pitch. It should be comprehensible by a broad audience of readers with low to expert experience with the topic, so it is important to include examples and simple explanations alongside any technical language.

Length: 600 - 1500 words

Text: Please use standard fonts such as Arial, Calibri, or Times New Roman. Fonts, font sizes, and line spacing will be reformatted by LIA for the final piece. Grammar and mechanics will be edited to the LIA style guide by LIA, but please be mindful of spelling and grammar as you are writing so that your message is clear.

Headline: Please include two newsworthy headlines suggestions for your article using action verbs.

Images & Figures: Please include images to be used with the article. Submit as an email attachment (PNG, GIF, JPG, JPEG) (min. 1000px in width or height). Images should also be placed in the body of the text where the author would like them to appear in the final article. All figures or images should include captions.

Deadlines: All material is due no later than two weeks prior to the scheduled publishing date. Check with an editor for your deadline.

Note: LIA reserves the right to abstain from publishing a submitted article for any reason.

SUBMISSION CHECK LIST:

- Full text as a Word Document
  - Abstract: A 50 – 100 word summary in plain language
  - Two (2) headline suggestions using an action verb
  - Article 600 – 1500 Words
  - Images with captions placed in the body of the article
  - Article references when applicable
  - Short author *bio* (full title, company, 50 words)
  - (optional) Professional headshot of author
- Images attached in one of the accepted file types (.png, .tiff, .jpeg, .jpg) (min. 1000px width or height).

VIEW SUBMISSION FORM

BLS
THE BOARD OF LASER SAFETY

NEWSLETTER

Volume 2 • Issue 3

Recently Certified

Georgios Romanos - CMLSO

Kyle Smith - CLSO

Sergey Avanesyan - CLSO

Austin Erb - CMLSO

Luis Carvajal - CMLSO

Tiffany Castle - CMLSO

Phan Daniel - CLSO

Amy Leicht - CMLSO

Deirdre Owen - CMLSO

Board of Laser Safety
12001 Research Pkwy, Suite 210
Orlando, FL 32826

Toll Free: 1.800.345.2737
Telephone: +1.407.985.3810
Email: bls@lasersafety.org
Website: www.lasersafety.org

LIA Classroom Courses for BLS CM Points

The following classroom courses are available to get BLS CM points:

Industrial Laser Safety Officer Training, November 10-11, 2021-Novi, MI
Laser Safety Officer Training, December 1-3, 2021-Orlando, FL
Medical Laser Safety Officer Training, December 4-5, 2021-Orlando, FL
Laser Safety Officer with Hazard Analysis Training, December 6-10, 2021-Orlando, FL

Find more information here: https://www.lia.org/training

New ANSI Z136 Standards

The following are the new ANSI Z136 standards that have come out at the end of last year and beginning of this year:

ANSI Z136.4 (2021) - *Recommended Practice for Laser Safety Measurements for Classification and Hazard Evaluation*
ANSI Z136.8 (2021) - *Safe Use of Lasers in Research, Development, or Testing*

Find these new standards, as well as the rest, on our website at lia.org/store/laser-safety-standards

International Laser Safety Conference (ILSC) 2022 Dates and Location

"We are excited to announce that ILSC will be held in Houston, Texas this year! Join us at the Royal Sonesta from March 21-24, 2022 for the laser safety conference you've been looking forward to!" - ILSC Conference Team

Abstract Submissions are currently open to interested speakers with a deadline of October 12, 2022. Find out more about the conference at ilsc.ngo.

Certification Exams

Due to COVID-19 there will not be any paper-and-pencil exams held in 2021. Computer-based testing will still be available year-round through our third-party test administrator at certain locations. For exam information, visit www.lasersafety.org, or contact us at bls@lasersafety.org.

Write for BLS!

Looking for a way to earn BLS CM points for free? BLS has restarted it's newsletter and is inviting CLSOs and CMLSOs to share laser safety knowledge with the laser community! Published article submissions are worth 0.5 BLS Certification Maintenance (CM) points in Category 3. For more information on guidelines and regulations, email us at bls@lasersafety.org. Check out one of our submissions on the next page!

BLS Initial Certification Steps

There are two steps involved in becoming a Certified Laser Safety Officer/Certified Medical Laser Safety Officer. First, an individual must provide information demonstrating he or she meets certain educational prerequisites and work experience. Second, the individual must pass an examination demonstrating his/her knowledge in the area of laser safety. safety.

Prerequisites and Application Requirements

In order for an individual to qualify to take the CLSO/CMLSO examination, the following requirements must be met:

1. Candidates must have a 4-year degree from an accredited institution or a 2-year AS degree or high school diploma and substantial experience in laser safety.
2. Candidates must have a minimum of one (1) year of experience with laser safety or acting as LSO, having performed the specific responsibilities outlined in the ANSI Z136.1 *American National Standard for Safe Use of Lasers*/ANSI Z136.3 *American National Standard for Safe Use of Lasers in Health Care*.
3. Candidates must provide two (2) professional reference statements or letters of recommendation from the applicant's supervisor, and/or other knowledgeable person(s), stating that the applicant has performed the specific responsibilities of an LSO.
4. Candidates must provide a certificate of completion of a BLS approved Laser Safety Officer course. In special cases, this requirement may be waived by the BLS upon application with supporting documentation. BLS approved Laser Safety Officer courses can be found on www.lasersafety.org. The BLS reviews a series of criteria to determine approved courses. BLS approved courses' content is also reflected in the exam content, which can be found in the Required Competence section. To get a course approved to meet the certification criteria, follow the same procedures listed in Applying for CM Credit. Please note, the information in these courses can help you prepare for the certification exam. However, use of this information by itself will not be adequate for preparation for the exam. A CLSO/CMLSO Examination Reference Guide may be obtained by contacting the BLS or by visiting www.lasersafety.org.

Application and Certification Exam

Applications may be obtained by contacting the BLS or by visiting the BLS website at www.lasersafety.org. A non-refundable fee of $50.00 must accompany the application or it will not be processed.

The BLS will advise each applicant of his/her eligibility to sit for the certification examination. The candidate will have a two (2) year period from the date of notification of acceptance that they may the examination. The candidate may schedule a maximum of two exam attempts during this window (retake fees apply). If the candidate does not take/pass the exam during that window, they must re-apply to take the exam with new application materials and new fees in order to open a new 2-year window, only after the first 2-year window has closed. A minimum score of 72 is required to pass the Certified Laser Safety Officer exam and a minimum score of 70 is required to pass the Certified Medical Laser Safety Officer exam. Once passed, certification is achieved and must then be maintained.

Ready to apply? Click here to start the application.

About BLS

The mission of the Board of Laser Safety (BLS) is to provide a means for the recognition of laser safety professionals through certification and to promote competency in the field of laser safety. BLS certification will enhance the credibility of a designated Laser Safety Officer, and demonstrate that individuals serving in the field have agreed to adhere to high standards of safety and professional practice. For the employer, having a CLSO or CMLSO on staff demonstrates due-diligence and helps to ensure legitimacy and adequacy of the laser safety program, validating the company's dedication to a safe working environment for all employees.